CLAIMS

1. A method for the determination of the bias current of a quartz oscillator, comprising the phases of: defining a series of bias currents having a prefixed value; supplying a bias current value not yet used to said quartz oscillator; verifying the oscillation frequency at the output of said quartz oscillator; supplying in the negative case a bias current value not yet used to said quartz oscillator and; verifying a correct oscillation frequency; supplying in the negative case a bias current not yet used to said quartz oscillator and verifying the oscillation frequency at the output of said quartz oscillator; storing in the positive case an indication that the supplied current is valid; repeating the preceding phases up to the exhaustion of said series of values of bias currents; fixing as a bias current of said quartz oscillator the algebraic average of the currents regarded as valid.

2. The method of claim 1 wherein said series of values of bias currents is divided in two sections; the first section has current values separated from each other by a first preset value, the second section has current values separated from each other by a second preset value, said second preset value is lower than said first preset value.

3. The method of claim 1 wherein said phases are performed at the turning on of said quartz oscillator.

4. The method of claim 1 wherein said phases are performed occasionally.

5. The method of claim 1 wherein said phases are performed periodically.

6. The method of claim 1 wherein the algebraic average of the currents regarded as valid plus a preset current is fixed as the bias current of the quartz oscillator.

7. A method for determining the bias current of a quartz oscillator, comprising:

defining a plurality of bias current values;

supplying in sequence the plurality of bias current values to the quartz oscillator;

determining the oscillation frequency of an output signal at the output of the quartz oscillator corresponding to each bias current value;

determining the bias current values having a valid oscillation frequency in the output signal of the quartz oscillator; and

fixing as a bias current of the quartz oscillator an algebraic average of the bias currents determined to have a valid oscillation frequency in the signal output of the quartz oscillator.

8. The method of claim 7 wherein determining the bias current values having valid oscillation frequencies further comprises storing in a memory a reference to the bias current values having valid oscillation frequencies in the output signal of the quartz oscillator.

9. The method of claim 1 wherein defining the plurality of bias current values comprises defining a series of positive bias current values and a series of negative bias current values.

10. The method of claim 9 wherein the plurality of bias current values is divided into two sections, a first section having bias current values separated from each other by a first preset value, and a second section of bias current values separated from

each other by a second preset value, and the second preset value is set to be lower than the first preset value.

11. The method of claim 1 wherein fixing as a bias current of the quartz oscillator further comprises adding the algebraic average of the bias current values determined as having valid oscillation frequencies of the output signal of the quart oscillator to a preset current value.

12. The method of claim 7 wherein the method is performed each time the quartz oscillator is turned on.

13. The method of claim 7 wherein the method is performed periodically.

14. An apparatus for determining the bias current of a quartz oscillator for generating an output signal, the apparatus comprising:

a ramp signal generator having an input coupled to an output of the quartz oscillator and an output on which is generated a ramp signal in response to the quartz oscillator output signal;

a voltage comparator comparing the ramp signal to a reference voltage and generating a comparison output signal;

a control logic circuit having an input for receiving the comparison output signal from the comparator, the control logic circuit configured to generate a bias current control signal at an output thereof responsive to the comparison output signal of the comparator; and

a current generator having an input for receiving the bias current control signal from the control logic circuit and for generating a bias current signal to the quartz oscillator;

wherein the control logic circuit is further configured to determine the bias current of the quartz oscillator by:

generating a plurality of bias currents having a prefixed value;

supplying the plurality of bias current values to the quartz oscillator;

verifying the oscillation frequency of an output signal generated by the quartz oscillator for each of the plurality of bias current values;

storing the bias current values determined to have valid oscillation frequencies in the output signal of the quartz oscillator; and

determining as a bias current of the quartz oscillator the algebraic average of the bias current determined to have valid oscillation frequencies at the output signal of the quartz oscillator.

15. The apparatus of claim 14 wherein the control logic circuit is further configured to generate the plurality of bias current values in two sections, a first section having bias current values separated from each other by a first preset value, and a second section having bias current values separated from each other by a second preset value, the second preset value being lower than the first preset value.

16. The apparatus of claim 15, further comprising an activation circuit having an output coupled to an activation input of the control logic circuit for initiating the determination of the bias current of the quartz oscillator.

17. The apparatus of claim 16, further comprising an oscillation detector circuit having an input coupled to the output of the quartz oscillator and an output coupled to an oscillation detector output signal input of the control logic circuit.

18. The apparatus of claim 17, further comprising a clipper amplifier circuit coupled between the quartz oscillator and the ramp generator circuit and further between the quartz oscillator and the oscillation detector circuit.